

CLAIMS

What is claimed is:

1. A method of controlling a media access control (MAC) communication protocol layer in a wireless network, comprising:
monitoring a characteristic of a data frame to be transmitted on a MAC layer after a basic service set (BSS) for the wireless network starts; and
changing the MAC layer super-frame length, if determined based upon the monitoring that a super-frame length needs to be changed due to a variation in a transmission duration of the data frame.
2. The MAC method according to claim 1, wherein the monitoring comprises monitoring whether a data frame and a payload length of the data frame correspond to a contention free period (CFP) or to a contention period (CP) of the MAC layer super-frame.
3. The MAC method according to claim 2, wherein the changing comprises not changing the super-frame length, if determined that lengths of the CFP and the CP are changeable within a range of a currently fixed length of the super-frame.
4. The MAC method according to claim 1, further comprising:
monitoring a channel status of the wireless network; and
changing the super-frame length in consideration of the channel status.
5. The MAC method according to claim 4, wherein the channel status comprises a number of stations connected to the BSS, a number of data frame retransmissions, and a channel utilization rate.

6. A media access control (MAC) communication protocol layer system in a wireless network, comprising:

- a protocol controller analyzing a characteristic of a data frame to be transmitted on the wireless network MAC layer after a basic service set (BSS) for the wireless network starts; and
- a channel monitor monitoring the analyzed characteristic of the data frame, determining according to the monitoring whether to change the MAC layer super-frame length due to a variation in a transmission duration of the data frame, changing the super-frame length, and informing the protocol controller of the changed super-frame length.

7. The MAC system according to claim 6, wherein the protocol controller analyzes an information area of the data frame to be transmitted, detects a data characteristic comprising a user priority, and determines whether the data frame and a payload length of the data frame correspond to a contention free period (CFP) or to a contention period (CP) of the MAC layer super-frame.

8. The MAC system according to claim 7, wherein the channel monitor does not change the super-frame length, if determined that lengths of a contention free period (CFP) and a contention period (CP) are changeable within a range of a currently fixed length of the super-frame.

9. The MAC system according to claim 6, wherein the protocol controller analyzes a channel status of the wireless network,

- the system further comprising a management information base (MIB) storing the analyzed channel status information,
- wherein the channel monitor further monitors the analyzed channel status information stored in the MIB to determine whether to change the MAC layer super-frame length.

10. The MAC system according to claim 9, wherein the channel status comprises a number of stations connected to the BSS, a number of data frame retransmissions, and a channel utilization rate.

11. A wireless network media access control (MAC) communication protocol layer controller, comprising:

a programmed computer processor monitoring a characteristic of a data frame to be transmitted on the MAC layer after initiating a basic service set (BSS) for the wireless network, and changing the MAC layer super-frame length according to a variation in a transmission duration of the data frame based upon the monitoring.

12. A wireless network access point, comprising:

a controller controlling data communication by the wireless network media access control (MAC) layer, according to a process comprising:

varying the wireless network MAC layer super-frame length according to transmitted data frame super-frame period type, payload length information, and/or channel status information after initiation of a wireless network basic service set (BSS) fixing the MAC layer super-frame length.

13. A wireless network access point controlling wireless data communication according to an IEEE 802.11 wireless network standard, comprising:

a protocol controller analyzing a characteristic of a data frame to be transmitted on a wireless network media access control (MAC) layer after initiation of a basic service set (BSS) for the wireless network;

a channel monitor monitoring the analyzed characteristic of the data frame, determining according to the monitoring whether to change a super-frame length of the MAC layer due to a variation in a transmission duration of the data frame, and informing the protocol controller of the changed super-frame length; and

a MAC protocol data unit generator including the changed super-frame length in a beacon frame, or a probe response, to be provided to each wireless network mobile station in response to the protocol controller providing the changed super-frame length, and generating protocol data units to be transmitted according to the IEEE 802.11 standard including the changed super-frame length.